UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,503	04/18/2001	Vincent M. Callaghan	01-104	8044

7590 02/05/2007

Gregory P. LaPointe
BACHMAN & LaPOINTE, P.C.
Suite 1201
900 Chapel Street
New Haven, CT 06510-2802

EXAMINER	
LEUNG, JENNIFER A	
ART UNIT	**PAPER NUMBER**
1764	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/837,503	CALLAGHAN ET AL.	
	Examiner	Art Unit	
	Jennifer A. Leung	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 October 2006 and 15 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-11 and 17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-11 and 17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's response submitted on October 19, 2006 and Applicant's response to a Notice of Non-Compliant Amendment submitted on November 15, 2006 have been received and carefully considered. Claims 3 and 12-16 are cancelled. Claims 1, 2, 4-11 and 17 are under consideration.

Claim Rejections - 35 USC § 102 and 35 USC § 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1, 2 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirota (JP 59-213940).

Regarding claim 1, Hirota (FIG. 3, 4; English Abstract) discloses a fuel cell system comprising: a fuel processor (i.e., a reforming section **1d**) producing a reformed gas; first conduit means (i.e., reforming gas piping **20** to fuel cell piping **20b**) communicating the reformed gas to a shift converter (i.e., CO converter **24**) located downstream of the fuel processor **1d**; second conduit means (i.e., reformed gas piping **25**) communicating the reformed gas to a fuel cell **7**, downstream of the shift converter **24**; a water source (i.e., water in tank **15**); and water feed means (i.e., piping, with water pump **16**) for feeding water from the water source **15** to the first conduit means **20/20b** (i.e., at mixer **23**) in a controlled manner. In view of the newly incorporated subject matter, Hirota further discloses that the water feed means includes control means (i.e., a water pump **16**, inherently controllable) for controlling the feeding of water to the first conduit means **20/20b** (i.e., at mixer **23**).

Regarding claim 2, the system of Hirota structurally meets the claim because the amount of water added and the particular oxygen/carbon ratio fed to the shift converter **24** are considered process limitations that add no further structure to the apparatus claim.

Regarding claim 5, the apparatus (FIG. 3, 4) further includes means for collecting water from the fuel cell **7** and recycling at least a portion of the collected water to the water source **15** (i.e., via piping, with element **14**).

Instant claims 1, 2 and 5 structurally read on the apparatus of Hirota.

3. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota (JP 59-213940) in view of Fleischli et al. (US 5,380,088).

Hirota discloses that the water feed means comprises a mixer device **23** located in the conduit means **20/20b**. Hirota, however, it silent as the mixer device **23** comprising means to atomize water, or a packing of high surface area material, wherein the material is selected from the group consisting of ceramic pellets, steel wool, reticulated ceramic foam, metal foam, and honeycomb monoliths.

Fleischli et al. (FIG. 1) teaches a mixing device comprising means to atomize water (i.e., an injection system **3**), and a packing of high surface area material (i.e., static mixing unit **4**), wherein the material is selected from the group consisting of ceramic pellets, steel wool, reticulated ceramic foam, metal foam, and honeycomb monoliths (e.g., a honeycomb monolith, defined by corrugated layers **11**; see FIG. 2).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the mixer device of Fleischli et al. for the mixer device **23** in the apparatus of Hirota, on the basis of suitability for the intended use thereof, because the mixer of Fleischli et al. is a simple device that provides intimate mixing over the entire cross section of a channel, and over short sections, while maintaining a small pressure drop (see column 2, lines 38-46). In any event, the substitution of known equivalent structures (e.g., the substitution of one known mixing device for another known mixing device) involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

4. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota (JP 59-213940) in view of Fanciullo (US 4,046,956).

Hirota (FIG. 3, 4; English Abstract) discloses a fuel cell system comprising:

a fuel processor (i.e., a reforming section **1d**) producing a reformed gas; first conduit means (i.e., reforming gas piping **20** to fuel cell piping **20b**) communicating the reformed gas to a shift converter (i.e., CO converter **24**) located downstream of the fuel processor **1d**; second conduit means (i.e., reformed gas piping **25**) communicating the reformed gas to a fuel cell **7**, downstream of the shift converter **24**; and water feed means (i.e., piping, with water pump **16**) for feeding water from the water source **15** to the first conduit means **20/20b** (i.e., at mixer **23**) in a controlled manner. Hirota, however, is silent as to the apparatus further comprising at least one selective oxidizer, between the shift converter **24** and the fuel cell **7**, and located downstream of where the water feed means feeds water to at least one of the first and second conduit means.

Fanciullo (FIG. 1) teaches a fuel cell system comprising a fuel processor (i.e., reformer **17**), a shift converter **28** and a fuel cell **10**. Fanciullo further teaches at least one selective oxidizer **32**, provided between the shift converter **28** and the fuel cell **10**. In the "Description of the Prior Art", Fanciullo evidences that the above stated elements as well as their particular arrangement is conventional to fuel cell systems (see column 1, lines 10-35).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to further provide at least one selective oxidizer at the recited location between the shift converter **24** and the fuel cell 7 in the apparatus of Hirota, on the basis of suitability for the intended use thereof, because the provision of a selective oxidizer further decreases the carbon monoxide content of a reformed gas stream to a tolerable level for use by a fuel cell. The reduction in carbon monoxide minimizes the poisoning of a fuel cell, which is desirable in cases where long life is an important criterion, as taught by Fanciullo (see column 1, lines 27-35).

5. Claims 1, 2 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeu (JP 62-283567).

Regarding claim 1, Takeu (FIG. 1; English Abstract) discloses a fuel cell system comprising: a fuel processor (i.e., reformer **8**) for producing a reformed gas; first conduit means (i.e., the piping, not labeled, extending between elements **8** and **9**) for communicating the reformed gas to a shift converter (i.e., a high temperature shift converter **9**) located downstream of the fuel processor **8**; second conduit means (i.e., the piping, not labeled, extending between elements **9** and **10**) for communicating the reformed gas to a fuel cell **1** downstream of the shift converter **9**; a water source (i.e., steam source **7**); and water feed means (i.e., piping **11** and **12**) for feeding water from the water source **7** to at least one of the first and second conduit means in a controlled manner. In view of the newly incorporated subject matter, Takeu further discloses that the water feed means includes control means (i.e., control valves **13** and **14**, in conjunction with valves **15** and **16**) for controlling the feeding of water **7** to at least one of the first and second conduit means, via pipes **11** and **12**.

Regarding claim 2, the system of Takeu structurally meets the claim because the amount of water added and the particular oxygen/carbon ratio fed to the shift converter **9** are considered process limitations that add no further structure to the apparatus claim.

Regarding claim 11, water **7** is fed to both the first conduit and the second conduit via pipes **11** and **12**, respectively (see FIG. 1).

Instant claims 1, 2 and 11 structurally read on the apparatus of Takeu.

6. Claims 4 and 7 are rejected under 35 U.S.C. 102(b) as anticipated by Takeu (JP 62-283567), or, in the alternative, under 35 U.S.C. 103(a) as obvious over Takeu (JP 62-283567) in

view of Applicant's Disclosed Prior Art.

Regarding claim 4, according to the English abstract, "a temperature transmitter detects the temperature rise to show the generation of a methane reaction, a control valve **13**, and automatic breaker valves **15** and **16** are opened... to introduce steam." Although such control elements are not specifically shown in the Figure, the abstract suggests that the system of Takeu meets the claim of a "control means [that] senses the temperature of the reformed gas and gas stream, respectively, and feeds water to at least one of the first and second conduits, respectively, in response to the sensed temperature." Furthermore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the claimed control elements in the apparatus of Takeu, on the basis of suitability for the intended use thereof, because, "Such control systems for sensing temperature of a gas stream and controlling a flow valve in response to the sensed temperature are well known in the art," as specifically stated in Applicant's disclosure (see specification, page 5, lines 21-31; specifically, lines 29-31).

Regarding claim 7, although Takeu does not specifically state that the control valves **13** and **14** are "solenoid valves", it would have been obvious for one of ordinary skill in the art at the time the invention was made to select solenoid valves for the control valves **13** and **14** in the apparatus of Takeu, on the basis of suitability for the intended use thereof, because the Examiner takes Official Notice that the use of solenoid valves for control valves is well known in the art.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeu (JP 62-283567) in view of Hirota (JP 59-213940).

Takeu is silent as to the apparatus further comprising means for collecting water from the fuel cell **1** and recycling at least a portion of the collected water to the water source 7. In any

event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide means for collecting and recycling water from the fuel cell **1** to the water source 7 in the apparatus of Takeu, on the basis of suitability for the intended use thereof, because the Examiner takes Official Notice that it is well known in the art to collect and recycle unused reactants and products for subsequent use within the apparatus, for raw material conservation. This conventionally known concept is further evidenced by Hirota, who teaches a system comprising means for collecting and recycling water produced by a fuel cell **7** to a water source **15**, for subsequent use (see FIG. 3, 4).

8. Claims 6 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeu (JP 62-283567) in view of Fanciullo (US 4,046,956).

Takeu (FIG. 1; English Abstract) discloses a fuel cell system comprising a fuel processor (i.e., reformer **8**) producing a reformed gas; first conduit means (i.e., the piping, not labeled, extending between elements **8** and **9**) communicating the reformed gas to a shift converter (i.e., a high temperature shift converter **9**) located downstream of the fuel processor **8**; second conduit means (i.e., the piping, not labeled, extending between elements **9** and **10**) communicating the reformed gas to a fuel cell **1** downstream of the shift converter **9**; a water source (i.e., steam source **7**); and water feed means (i.e., piping **11** and **12**) for feeding water from the water source **7** to the first and second conduit means in a controlled manner. The recitation of an amount of water added and the particular oxygen/carbon ratio fed to the shift converter **9** are considered process limitations that add no further structure to the apparatus claim.

Takeu is silent as to the apparatus further comprising at least one selective oxidizer, between the shift converter **9** and the fuel cell **1**, and located downstream of where the water feed

means (e.g., piping **12**) feeds water **7** to the second conduit means.

Fanciullo (FIG. 1) teaches a fuel cell system comprising a fuel processor (i.e., reformer **17**), a shift converter **28** and a fuel cell **10**. Fanciullo further teaches at least one selective oxidizer **32**, provided between the shift converter **28** and the fuel cell **10**. In the "Description of the Prior Art", Fanciullo evidences that the above stated elements as well as their particular arrangement is conventional to fuel cell systems (see column 1, lines 10-35).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to further provide at least one selective oxidizer at the recited location between the shift converter **9** and the fuel cell **1** in the apparatus of Takeu, on the basis of suitability for the intended use thereof, because the provision of a selective oxidizer further decreases the carbon monoxide content of a reformed gas stream to a tolerable level for use by a fuel cell. The reduction in carbon monoxide minimizes the poisoning of a fuel cell, which is desirable in cases where long life is an important criterion, as taught by Fanciullo (see column 1, lines 27-35).

9. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeu (JP 62-283567) in view of Fleischli et al. (US 5,380,088).

Takeu is silent as to the water feed means comprising a mixer device with means to atomize water, or a packing of high surface area material, wherein the material is selected from the group consisting of ceramic pellets, steel wool, reticulated ceramic foam, metal foam, and honeycomb monoliths.

Fleischli et al. (FIG. 1) teaches a mixing device comprising means to atomize water (i.e., an injection system **3**), and a packing of high surface area material (i.e., static mixing unit **4**), wherein the material is selected from the group consisting of ceramic pellets, steel wool,

reticulated ceramic foam, metal foam, and honeycomb monoliths (e.g., a honeycomb monolith, defined by corrugated layers **11**; see FIG. 2).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the mixer device of Fleischli in the apparatus of Takeu, on the basis of suitability for the intended use thereof, because the mixer of Fleischli et al. is a simple device that provides intimate mixing over the entire cross section of a channel, and over short sections, while maintaining a small pressure drop (see column 2, lines 38-46).

Response to Arguments

10. Applicant's arguments in the response filed on October 19, 2006 (and repeated in the response filed on November 15, 2006) have been fully considered but they are not persuasive.

Comments regarding the rejection of claims 1, 2, 5, 8-10 and 17 as being anticipated by Hirota (JP 59-213940), or obvious over Hirota in view of secondary references.

Applicants (at page 6, last paragraph, of the response) argue that Hirota fails to anticipate the claimed invention because the pump **16** of Hirota does not require a control member, such as that called for by claim 1. The Examiner respectfully disagrees. Instant claim 1 merely recites water feed means that include a "control means for controlling the feeding of water to at least one of the first and second conduit means." The pump **16** is a means for controlling the feeding of water to at least one of the first and second conduit means, since the pump inherently controls the flow rate of water to the conduit means (see also FIG. 4 of Hirota, wherein a set amount of water at "1.5" is maintained through the water feed means). It is noted that the features upon which applicant relies (i.e., a particular structure for the control means, for example, including control valves, temperature sensors, etc.) are not recited in the rejected claim(s). Although the

claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicants (at page 7, third paragraph, of the response) further argue that the combined teachings of Hirota and Fanciullo do not at all arrive at the specific location of the water injection point with respect to the selective oxidizer as required in claim 17. The Examiner respectfully disagrees.

Claim 17 currently recites that the at least one selective oxidizer is positioned between the shift converter and the fuel cell, and located downstream of where the water feed means feeds water to the at least one of the first and second conduit means.

Fanciullo teaches a fuel cell system comprising a fuel processor (i.e., reformer **17**), a shift converter **28** and a fuel cell **10**. Fanciullo further teaches at least one selective oxidizer **32**, provided between the shift converter **28** and the fuel cell **10**. In the "Description of the Prior Art", Fanciullo evidences that the above stated elements as well as their particular arrangement is conventional to fuel cell systems (see column 1, lines 10-35). It would have been obvious for one of ordinary skill in the art at the time the invention was made to further provide at least one selective oxidizer at the recited location between the shift converter **24** and the fuel cell **7** in the apparatus of Hirota, on the basis of suitability for the intended use thereof, because the provision of a selective oxidizer further decreases the carbon monoxide content of a reformed gas stream to a tolerable level for use by a fuel cell. The reduction in carbon monoxide minimizes the poisoning of a fuel cell, which is desirable in cases where long life is an important criterion, as taught by Fanciullo (see column 1, lines 27-35).

Looking now to FIG. 3 of Hirota, the positioning of the selective oxidizer between the

shift converter **24** and the fuel cell **7** configures the selective oxidizer to be located downstream of where the water feed means feeds water to the first conduit means **20/20b**, at mixer **23**. Please note that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Comments regarding the rejection of claims 1, 2, 4-11 and 17 as being anticipated by Takeu (JP 62-283567), or obvious over Takeu in view of secondary references.

Applicants (at page 7, first paragraph, of the response) argue that Takeu fails to anticipate the claimed invention because Takeu discloses the use of vapor phase water (i.e., steam), and not liquid phase water, to cool the reformed gas and converted gas streams in the first and second conduit means. The Examiner respectfully disagrees and maintains that the apparatus of Takeu meets the claims. Firstly, it is noted that the features upon which applicant relies (i.e., liquid phase water) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Secondly, expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969). Also, inclusion of a material or article worked upon by a structure being claimed does not impart patentability to the claims. *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935); *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963). Thirdly, the temperature at which the water is to

be supplied to the first conduit means and/or the second conduit means (i.e., such that the water is either in a vapor phase or a liquid phase) is considered a process limitation that adds no further patentable weight to the apparatus claim.

Applicants (at page 7, third paragraph, of the response) further argue that the combined teachings of Takeu and Fanciullo do not at all arrive at the specific location of the water injection point with respect to the selective oxidizer as required in claims 6 and 17. The Examiner respectfully disagrees.

Claim 6 currently recites that the at least one selective oxidizer is provided between the shift converter and the fuel cell, and located downstream of where the water feed means feeds water to the second conduit means. Claim 17 currently recites that the at least one selective oxidizer is positioned between the shift converter and the fuel cell, and located downstream of where the water feed means feeds water to the at least one of the first and second conduit means.

Fanciullo teaches a fuel cell system comprising a fuel processor (i.e., reformer **17**), a shift converter **28** and a fuel cell **10**. Fanciullo further teaches at least one selective oxidizer **32**, provided between the shift converter **28** and the fuel cell **10**. In the "Description of the Prior Art", Fanciullo evidences that the above stated elements as well as their particular arrangement is conventional to fuel cell systems (see column 1, lines 10-35). Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to further provide at least one selective oxidizer at the recited location between the shift converter **9** and the fuel cell **1** in the apparatus of Takeu, on the basis of suitability for the intended use thereof, because the provision of a selective oxidizer further decreases the carbon monoxide content of a reformed gas stream to a tolerable level for use by a fuel cell. The reduction in carbon monoxide

minimizes the poisoning of a fuel cell, which is desirable in cases where long life is an important criterion, as taught by Fanciullo (see column 1, lines 27-35).

Looking to FIG. 1 of Takeu, the positioning of a selective oxidizer between the shift converter (i.e., a high temperature shift converter **9** and a low temperature shift converter **10**) and the fuel cell **1** configures the selective oxidizer to be located downstream of where the water feed means (i.e., lines **11** and/or **12**) feed water to the first and second conduit means. Please note that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer A. Leung
January 31, 2007

Glenn Caldarola
Supervisory Patent Examiner
Technology Center 1700